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ABSTRACT

In 1998 for the first time, the NAEP (National Assessment of Educational Progress) administered a writing assessment at the state level. This report describes the writing achievement of Colorado eighth-grade students and compares their overall performance to students in the West region of the United States and the nation (using data from the NAEP national assessments). In Colorado, 2697 students from 106 public schools were assessed. The writing assessment questions asked for three major kinds of writing: some required narrative, some informative, and some persuasive writing. Each student who participated in the state assessment was given two questions and had 25 minutes to respond to each question. The questions asked students to write in a variety of forms, such as essays, letters, stories, as well as to a variety of audiences, such as teachers, other students, and school boards. The distribution of writing results and writing achievement level results are provided for subpopulations of students (gender, race/ethnicity, students' reports of parents' educational level, free/reduced-price lunch program eligibility, and type of location). The average writing proficiency of eighth-grade public school students in Colorado on the NAEP writing scale was 151 compared to 148 nationwide. (RS)

ED 433 513

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NAEP 1998 Writing

STATE REPORT FOR COLORADO

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THE NATION'S REPORT CARD

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What is The Nation's Report Card?

THE NATION'S REPORT CARD, the National Assessment of Educational Progress (NAEP), is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other fields. By making objective information on student performance available to policymakers at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

NAEP is a congressionally mandated project of the National Center for Education Statistics, the U.S. Department of Education. The Commissioner of Education Statistics is responsible, by law, for carrying out the NAEP project through competitive awards to qualified organizations. NAEP reports directly to the Commissioner, who is also responsible for providing continuing reviews, including validation studies and solicitation of public comment, on NAEP's conduct and usefulness.

In 1988, Congress established the National Assessment Governing Board (NAGB) to formulate policy guidelines for NAEP. The Board is responsible for selecting the subject areas to be assessed from among those included in the National Education Goals; for setting appropriate student performance levels; for developing assessment objectives and test specifications through a national consensus approach; for designing the assessment methodology; for developing guidelines for reporting and disseminating NAEP results; for developing standards and procedures for interstate, regional, and national comparisons; for determining the appropriateness of test items and ensuring they are free from bias; and for taking actions to improve the form and use of the National Assessment.

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NAEP 1998 Writing

STATE REPORT FOR COLORADO

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In collaboration with

Alfred Rogers

September 1999

U.S. Department of Education
Office of Educational Research and Improvement

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Due to the confidential nature of NAEP surveys, the photograph on the cover of this report does not portray actual students who participated in the NAEP writing assessment. All photographs used are from Comstock and PhotoDisc stock libraries.

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Table of Contents

Section 1 **Overview of the NAEP Writing Assessment** 1
What Is NAEP? 1
What Is Reported Here? 1
What Was Assessed? 2
Who Was Assessed? 2
How Are Results Reported? 4
How Are Performance Differences Reported? 7
Overall Writing Results for Public School Students 8
Comparisons Between Colorado and Other Participating Jurisdictions 10

Section 2 **Writing Performance by Demographic Characteristics** 13
Gender 14
Race/Ethnicity 16
Students' Reports of Parents' Highest Education Level 20
Free/Reduced-Price Lunch Program Eligibility 24
Type of Location 27

Appendix A **Where to Find More Information** 29

Appendix B **Figures from Section 1** 33

Acknowledgments

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SECTION 1 Overview of the NAEP Writing Assessment

What Is NAEP?

The National Assessment of Educational Progress (NAEP) is the only nationally representative and continuing assessment of what students in the United States know and can do in various academic subjects. NAEP is authorized by Congress and directed by the National Center for Education Statistics (NCES). The National Assessment Governing Board (NAGB), an independent, bipartisan group, provides policy guidance for NAEP. In 1990, assessment at the state level was instituted on a voluntary basis. The NAEP assessments are administered to representative samples of students at the national level as well as at the state level for those states that choose to participate. The 1998 NAEP program included state-level assessments in reading at grades 4 and 8 and in writing at grade 8, and national-level assessments in civics, reading, and writing at grades 4, 8, and 12.

What Is Reported Here?

This marks the first time that the NAEP writing assessment has been administered at the state level. The assessment was administered at grade 8 in both public and nonpublic schools. However, Colorado's nonpublic schools failed to meet minimum participation guidelines for publication of results. Public school results for Colorado are reported here, along with national and regional results for comparison.

This report has two sections. This **Overview** provides basic information on NAEP and the overall results for public schools in tabular form, as well as comparisons of Colorado's performance with that of other participating states and jurisdictions in graphic form. It describes the assessment, the sample of students assessed, the metrics for reporting student performance, and how the differences in performance are reported. The second section, **Writing Performance by Demographic Characteristics**, reports findings for the grade 8 public school population broken down by major demographic categories. This information is presented in data tables. In addition, this report has two appendices. Appendix A, **Where to Find More Information**, describes the data available on the Web and provides information on sources of related data. Appendix B, **Figures from Section 1**, displays full-page replicas of Figures 1.2 and 1.3.

This report and its companion, the *NAEP 1998 Writing Report Card for the Nation and the States*,[1] provide a first look at the results of the NAEP 1998 writing assessment. Each participating jurisdiction receives its own customized *State Report* similar in format to this one. The *Writing Report Card* offers state-level data for all participating jurisdictions for which results are reported as well as details about technical aspects of the assessment. Summary data tables providing information for all jurisdictions for which results are reported are available at http://nces.ed.gov/nationsreportcard/, the NAEP Web site.

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[1] Greenwald, E.A., Persky, H.R., Campbell, J.R., & Mazzeo, J. (1999). *NAEP 1998 writing report card for the nation and the states* (NCES Publication No. 1999–459). Washington, DC: National Center for Education Statistics.

The demographic data provided in this report are only a small portion of the data available from the several hundred questions asked of students, teachers, and school principals in order to provide context for NAEP results. Overall results for demographic and contextual student and school variables for public school students in each participating jurisdiction are available in summary data tables at the NAEP Web site.

What Was Assessed?

For each assessment in NAEP, the subject area content is developed through a congressionally mandated national consensus project. The objectives for each assessment are described in a document called the framework, which describes the subject area to be assessed and the kinds of questions that will be used to measure it.

The *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress*[2] was first developed for the National Assessment Governing Board by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) for the 1992 writing assessment. For the 1998 assessment, detailed guidelines for new kinds of questions and for new ways to score student writing were developed by American College Testing (ACT) and added to the framework. The *Writing Framework* reflects recent theories of writing, which view writing as an act of discovery for the writer as well as a way to communicate with readers.

The writing assessment questions asked for three major kinds of writing: some required narrative, some informative, and some persuasive writing. Each student who participated in the state assessment was given two questions and had 25 minutes to respond to each question. The questions asked students to write in a variety of forms, such as essays, letters, and stories, as well as to a variety of audiences, such as teachers, other students, and school boards.

In addition to requiring a variety of kinds of writing, the assessment provided many kinds of visual and written materials to stimulate students' writing. Some students were asked to write in response to questions that incorporated photographs or cartoons. Other questions incorporated poems or stories, so that students were responding to literature as they answered those questions. At grade 8, there were 20 writing questions. Seven of those questions (35%) asked for narrative writing, seven (35%) asked for informative writing, and six (30%) asked for persuasive writing. The framework specified that distribution as appropriate for eighth grade.

Who Was Assessed?

Selection of Schools and Students

For the NAEP state assessment, participating schools within a given jurisdiction and students in those schools were selected using probability sampling methods. These methods are described in the *Writing Report Card*. In Colorado, 2697 public school students from 106 schools participated in the 1998 state writing assessment.

[2] National Assessment Governing Board. (1996). *Writing framework and specifications for the 1998 National Assessment of Educational Progress*. Washington, DC: Author.

Participation Guidelines

To ensure comparability in a particular subject across all jurisdictions, NCES and NAGB have established guidelines for school and student participation rates. In order for assessment results to be reported, a jurisdiction must have its weighted participation rate for the initial sample of schools greater than or equal to 70 percent. The NAEP state assessment in writing was administered in both public and nonpublic schools at grade 8 in 1998; participation rates are calculated separately for these two samples. The participation guidelines for reporting Colorado's nonpublic school results were not met. Details on participation rates and guidelines for all participating jurisdictions can be found in Appendix A of the *Writing Report Card*.

Possible Sources of Bias in Reported Results

Within a certain state sample that meets the guidelines for publication of results, there still may exist possible sources of bias of the results due to nonparticipation of selected schools or due to nonparticipation of certain student groups. These possible sources of bias are indicated by notations and are specified and described in Appendix A of the *Writing Report Card*. Colorado's public schools did not receive any notations to indicate the possibility of bias.

Participation by Students with Disabilities or who are Limited English Proficient

NAEP endeavors to assess all students selected in the randomized sampling process including students with disabilities (SD) as well as students who are beginning to learn English and are classified by their schools as limited English proficient (LEP). The guidelines used to classify students into these two categories vary from state to state. The percentages of students classified as SD or LEP in all participating states and jurisdictions are available in Appendix A of the *Writing Report Card*.

NAEP participation guidelines specify levels of SD/LEP student nonparticipation that put the sample at risk for nonresponse bias; however, all jurisdictions met these guidelines for the 1998 writing assessment.

NAEP offers certain accommodations for SD or LEP students who need them (for example, having the prompt read aloud or having extended time to respond), as described in the *Writing Report Card* and in a forthcoming report focusing on 1998 assessment results for SD and LEP students. However, school personnel make the ultimate decision as to whether or not a particular student should take the assessment and whether accommodations are needed. The table on the following page shows the percentage of students in Colorado and the nation who were classified as SD or LEP in 1998, the percentage of students who were excluded from NAEP at the discretion of school personnel, and the percentage of SD or LEP students who were assessed with and without accommodations.

Grade 8 students who are classified as limited English proficient (LEP) or having disabilities (SD)

Percentage of all students who are:	Colorado Public	Nation Public
Classified as LEP	4%	3%
Excluded from the assessment due to LEP	2%	1%
Classified as LEP and assessed with accommodations	1%	0%
Classified as LEP and assessed without accommodations	2%	2%
Classified as students with disabilities	9%	11%
Excluded from the assessment due to disability	3%	4%
Classified as SD and assessed with accommodations	2%	3%
Classified as SD and assessed without accommodations	4%	5%

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

How Are Results Reported?

In this report, as in other NAEP reports, only those results based on preestablished minimum sample sizes are reported. The results are reported in terms of two metrics—average scale scores and percentages of students at or above each achievement level (as well as the percentage below the *Basic* level). Descriptions of these two metrics follow. Further details can be found in the *Writing Report Card*.

The NAEP Writing Scale

Students' responses to a writing prompt were analyzed to determine the percentages of students falling into each of six score categories. That information from all the writing prompts was combined using item response theory (IRT) methodology to form a writing performance scale. One scale was developed that encompasses the three purposes for writing (narrative, informative, and persuasive writing) in the assessment. Each grade (4, 8, and 12) has its own scale ranging from 0 to 300 with a mean of 150 and a standard deviation of 35. This scale is the metric used to present the average scale scores and selected percentiles in this and other reports. Details on scaling procedures will be available in the forthcoming *Technical Report*.

The Writing Achievement Levels

In addition to the NAEP writing scale, results are also reported in terms of the writing achievement levels authorized by the NAEP legislation[1] and adopted by the National Assessment Governing Board (NAGB). The achievement levels are performance standards based on the collective judgments of a broadly representative panel that included teachers (55%), non-teaching educators (15%), and members of the general public (30%). These achievement levels reflect the panel's consensus as to what students should be expected to know and to do. Viewing students' performance from this perspective provides some insight into the adequacy of students' knowledge and skills and the extent to which they achieved expected levels of performance. NAGB reviewed and adopted the recommended achievement levels derived from the work of this panel.

10

[1] The National Education Statistics Act of 1994 requires that the National Assessment Governing Board develop "appropriate student performance levels" for reporting NAEP results.

For each grade tested, NAGB has adopted three achievement levels: *Basic*, *Proficient*, and *Advanced*. For reporting purposes, the achievement level cut scores for each grade represent the boundaries between four ranges on the NAEP writing scale: below *Basic*, *Basic*, *Proficient*, and *Advanced*. The policy definitions of the achievement levels are shown on the following page. The text of the descriptions of expected writing performance at each achievement level at grade 8 and the cut scores that divide the levels are shown in Figure 1.1 on page 6.

Definitions of the achievement levels

Basic	Partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade
Proficient	Solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
Advanced	Superior performance

The NAEP legislation requires that the achievement levels be used on a developmental basis until the Commissioner of Education Statistics determines, as the result of a congressionally mandated evaluation by one or more nationally recognized evaluation organizations, that the achievement levels are "reasonable, valid, and informative to the public." Upon review of the available information, the Acting Commissioner agrees with the National Academy of Science (NAS) recommendation that caution needs to be exercised in the use of the current achievement levels, since in the opinion of the Academy "... appropriate validity evidence for the cut scores is lacking; and the process has produced unreasonable results."[4] Therefore, the Acting Commissioner concludes that these achievement levels should continue to be considered developmental and should continue to be interpreted and used with caution. In a recent study, 11 testing experts who provided technical advice for the achievement-level-setting process responded to the NAS report.[5] The *Writing Report Card* contains further information on the developmental status of the achievement levels. The Acting Commissioner and NAGB believe that the achievement levels are useful for reporting the educational achievement of students in the United States.

The following achievement level descriptions focus on such aspects of writing as understanding of the task and audience, organization, use of details and elaboration, and commands of the mechanics of writing. The achievement level descriptions reflect what writers performing at each achievement level should be able to do. The achievement levels are cumulative from *Basic* to *Proficient* to *Advanced*. Each level builds on the previous level such that knowledge at the *Proficient* level presumes mastery of the *Basic* level, and knowledge at the *Advanced* level presumes mastery of both the *Basic* and *Proficient* levels.

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[4] Pelligrino, J. W., Jones, L. R., & Mitchell, K. J. (Eds.). (1999). *Grading the nation's report card: Evaluating NAEP and transforming the assessment of educational progress*. Committee on the Evaluation of the National and State Assessments of Educational Progress, Board on Testing and Assessment, Commission on Behavioral and Social Sciences and Education, National Research Council. (p. 182). Washington, DC: National Academy Press.

[5] Hambleton, R.K., Brennan, R.L., Brown, W., Dodd, B., Forsyth, R.A., Mehrens, W.A., Nellhaus, J., Reckase, M., Rindone, D., van der Linden, W.J., & Zwick, R. (1999). *A response to "Setting reasonable and useful performance standards" in the National Academy of Sciences' Grading the nation's report card*. Report available from the first author at Laboratory of Psychometric and Evaluative Research, University of Massachusetts, Hill House South Room 154, Amherst MA 01003. E-mail rkh@educ.umass.edu.

THE NATION'S REPORT CARD 1998 State Assessment

FIGURE 1.1

Levels of Writing Achievement at Grade 8

The following statements describe the kinds of things eighth-grade students should be able to do in writing at each level of achievement. These statements should be interpreted with the constraints of the National Assessment of Educational Progress in mind. Student performance reported with respect to these descriptions are in response to two age-appropriate writing tasks completed within 25 minutes each. Students are not advised of the writing tasks in advance nor engaged in pre-writing instruction and preparation; however, they are given a set of "ideas for planning and evaluating" their writing for the assessment. Although the NAEP writing assessment cannot fully assess students' abilities to produce a polished piece of writing, the results do provide valuable information about students' abilities to generate writing in response to a variety of purposes, tasks, and audiences within a rather limited period of time. The portion in bold is a summary of the text following it.

BASIC LEVEL (114)

Eighth-grade students performing at the basic level should be able to produce an effective response within the time allowed that shows a general understanding of the writing task they have been assigned. Their writing should show that these students are aware of the audience they are expected to address, and it should include supporting details in an organized way.

Eighth-grade students performing at the basic level should be able to produce an effective response within the time allowed that shows a general understanding of the writing task they have been assigned. Their writing should show that these students are aware of the audience they are expected to address, and it should include supporting details in an organized way. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader, although there may be mistakes that get in the way of meaning.

PROFICIENT LEVEL (173)

Eighth-grade students performing at the proficient level should be able to produce a detailed and organized response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should include precise language and varied sentence structure, and it may show analytical, evaluative, or creative thinking.

Eighth-grade students performing at the proficient level should be able to produce an effective response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should be organized, making use of techniques such as sequencing or a clearly marked beginning and ending, and it should make use of details and some elaboration to support and develop the main idea of the piece. Their writing should include precise language and some variety in sentence structure, and it may show analytical, evaluative, or creative thinking. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader; there may be some errors, but these should not get in the way of meaning.

THE NATION'S REPORT CARD naep 1998 State Assessment

FIGURE 1.1 (continued)

Levels of Writing Achievement at Grade 8

ADVANCED LEVEL (224)

Eighth-grade students performing at the advanced level should be able to produce a fully developed response within the time allowed that shows a clear understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking and may make use of literary strategies to clarify a point. At the same time, the writing should be clearly organized, demonstrating precise word choice and varied sentence structure.

Eighth-grade students performing at the advanced level should be able to produce an effective and fully developed response within the time allowed that shows a clear understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking, and should demonstrate precise word choice and varied sentence structure. Their work should include details and elaboration that support and develop the main idea of the piece, and it may make use of strategies such as analogies, illustrations, examples, anecdotes, or figurative language to clarify a point. At the same time, the writing should show that these students can keep their work clearly and consistently organized. Writing by eighth-grade students performing at the advanced level should contain few errors in grammar, spelling, punctuation, capitalization, and sentence structure. These writers should demonstrate good control of these elements and may use them for stylistic effect in their work.

How Are Performance Differences Reported?

In this report, statements that compare groups by using terms such as "higher" or "not significantly different" (e.g., "females scored higher than males") are based on the results of statistical tests. Because the percentages of students and the average writing scale scores presented in this report are based on samples—rather than on the entire population of eighth graders in a jurisdiction—the numbers reported are necessarily *estimates*. As such, they are subject to sampling error, a measure of uncertainty reflected in the *standard error*[6] of the estimate. When the percentages or average scale scores of certain groups are compared, it is essential to take the standard error into account rather than to rely solely on observed similarities or differences. The comparisons discussed in this report are based on statistical tests that consider both the magnitude of the differences between the averages or percentages and the standard errors of those statistics. The reader is cautioned to rely on the results of these statistical tests rather than simply on the size of any difference in scale scores or percentages in making inferences from the data.

The statistical tests determine whether the evidence—based on the data from the groups in the sample—is strong enough to conclude that there is an actual difference in the averages or percentages for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed *higher than* or *lower than* another group) regardless of the apparent size of the difference. If the evidence is not sufficiently strong (i.e., the difference is not statistically significant), the averages or percentages are described as being *not significantly different*—again, regardless of whether the sample averages or sample percentages appear to be about the same or widely discrepant.

[6] Standard errors measure the uncertainty that another sample drawn from the same population could have yielded somewhat different results.

Overall Writing Results for Public School Students

Presented below are results for Colorado's eighth-grade public school students as compared to students in the West region and nationwide. Additional results from the assessment can be found in the *Writing Report Card* and at http://www.nces.ed.gov/nationsreportcard/, the NAEP Web site.

Students' Overall Scale Scores

Table 1.1A shows the overall performance of Colorado's public school students, as well as the overall performance for the West region and the nation. The first column of results gives the average scale score on the NAEP 0–300 writing scale.

A broader and more delineated view of writing ability can be gained by looking at the scale scores across the performance continuum. The columns to the right of the average scale score show this distribution of scale scores by selected percentiles. An examination of the data at the 10th, 25th, 50th, 75th, or 90th percentile can provide a picture of how closely the performance of Colorado's students with lower or higher writing ability matches that of the region or the nation.

In terms of the average NAEP writing scale score for Colorado's public school students, Table 1.1A shows the following.

- The average scale score of public school students in Colorado was 151, higher than that of eighth graders in public schools nationwide (148).

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 1.1A

Average writing scale scores and selected percentiles for public school students

	Average scale score	Scale score distribution				
		10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Colorado	151 (1.3)	106 (1.5)	129 (1.5)	153 (1.3)	175 (1.7)	193 (1.5)
West	145 (1.3)	97 (2.0)	120 (1.6)	146 (1.7)	170 (1.3)	190 (1.6)
Nation	148 (0.6)	102 (1.0)	124 (0.8)	149 (0.6)	172 (0.8)	192 (1.2)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Overall Results in Terms of Achievement Levels

Table 1.1B presents the percentages of students who performed below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* levels. Because the percentages in the levels are cumulative from *Basic* to *Proficient* to *Advanced*, they sum to more than 100 percent. Only the percentage of students at or above *Basic* (which includes *Proficient* and *Advanced*) plus the percentage of students below *Basic* will always sum to 100 percent.

Table 1.1B indicates the following in terms of achievement levels attained by Colorado's public school students.

- The percentage of public school eighth graders in Colorado who performed at or above the *Proficient* level was 27 percent. This percentage did not differ significantly from that of public school students across the nation (24 percent).
- The percentage of students who performed at or above the *Basic* level in Colorado was 86 percent. This percentage was greater than that of public school students nationwide (83 percent).

THE NATION'S REPORT CARD 1998 State Assessment

TABLE 1.1B

Percentages of public school students attaining achievement levels

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Colorado	14 (1.1)	86 (1.1)	27 (1.5)	1 (0.3)
West	20 (1.2)	80 (1.2)	22 (1.2)	1 (0.2)
Nation	17 (0.5)	83 (0.5)	24 (0.8)	1 (0.1)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Comparisons Between Colorado and Other Participating Jurisdictions

In 1998, 41 states and other jurisdictions participated in the writing assessment. Of those, 39 met statistical reporting requirements for publishing their public school students' performance on the NAEP writing assessment. The map in Figure 1.2 shows the participating states and indicates their membership in four U.S. geographic regions. Note that the Virgin Islands and the Department of Defense Education Activity domestic (DDESS) and overseas (DoDDS) schools do not belong to any of these regions. Writing results for all participating states and other jurisdictions are available at the NAEP Web site. Figures 1.2 and 1.3 are also available in color at the NAEP Web site. In the companion *Writing Report Card*, there are additional data tables as well as multiple comparison charts permitting comparison of each participating jurisdiction with all others.

How to read Figures 1.2 and 1.3

Figure 1.2 presents a map comparing Colorado's overall 1998 grade 8 writing scale scores with those of all other participating states and jurisdictions. The different shadings are determined by whether or not Colorado's average scale score is significantly different (in a statistical sense) from that of each of the other participants in the 1998 NAEP state writing assessment. States that did not participate in 1998, or that did not meet reporting guidelines, are also represented in the map.

Figure 1.3 permits comparisons of all participants in the NAEP state assessment, in terms of percentages of public school students performing at or above the *Proficient* level and, conversely, those performing at the *Basic* level and below. The participating jurisdictions are arranged into categories reflecting student performance compared with that in Colorado. The jurisdictions are grouped by whether the percentage of their students with scores at or above the *Proficient* level (including *Advanced*) was higher than, not significantly different from, or lower than the percentage in Colorado. Note that the arrangement of the states and other jurisdictions within each category is alphabetical; statistical comparisons among the jurisdictions in each category are not included here.

Figure 1.3 graphically displays the percentages of eighth-grade students whose scores put them in the *Proficient* and *Advanced* categories (to the right of the vertical line). To the left of the vertical line is the proportion of students whose scores placed them in the *Basic* and below *Basic* categories.

The text and tables in this report refer to the percentage of students who score "at or above *Proficient*" and "at or above *Basic*." These percentages are cumulative. For instance, in Table 1.1B, "at or above *Proficient*" appears as a single percentage. In order to compare the percentage in Figure 1.3 with that in Table 1.1B, the percentage appearing in the *Proficient* band in the figure must be added to the percentage in the *Advanced* band to obtain the percentage of students whose scores categorize them as "at or above *Proficient*." Similarly, the sum of the percentages appearing in the *Basic*, *Proficient*, and *Advanced* bands yields the percentage of students "at or above *Basic*." The numbers in the figure may not add to the exact percentages at or above the achievement levels due to rounding; be sure to refer to the percentages in Table 1.1B for the correct cumulative percentages.

THE NATION'S REPORT CARD
1998 State Assessment

FIGURE 1.2

Colorado's 1998 average writing scale score compared with those of other participating jurisdictions for public school students at grade 8

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

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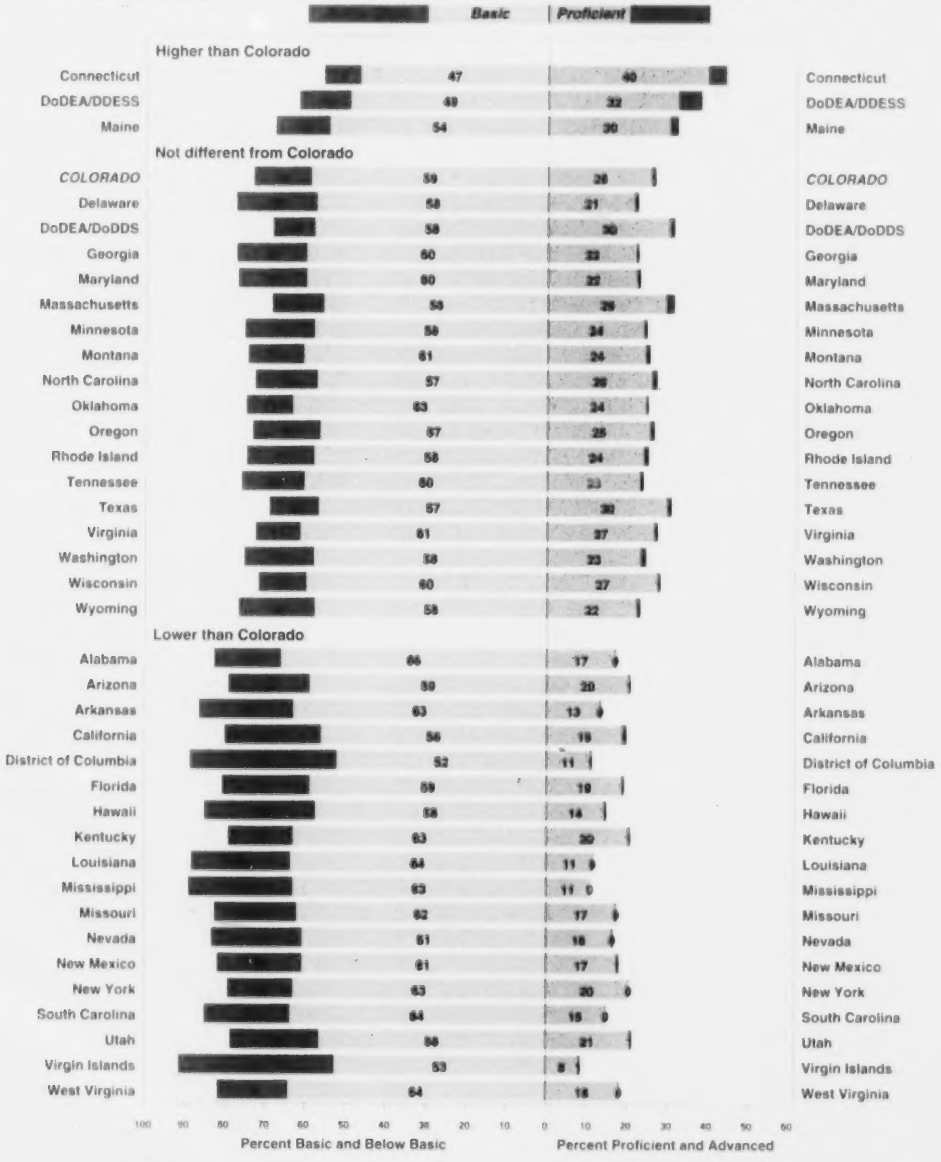
THE NATION'S REPORT CARD naep 1998 State Assessment

FIGURE 1.3

Achievement levels for writing: Comparing the percentage of public school students at or above the Proficient level in Colorado with those in other participating jurisdictions at grade 8 in 1998

The bars below contain estimated percentages of students in each NAEP writing achievement category. Each population of students is aligned at the point where the Proficient category begins, so that they may be compared at Proficient and above.


Basic
Proficient
Higher than Colorado
Connecticut 47 40 Connecticut
DoDEA/DDESS 46 32 DoDEA/DDESS
Maine 54 30 Maine
Not different from Colorado
COLORADO 59 28 COLORADO
Delaware 58 21 Delaware
DoDEA/DoDDS 58 30 DoDEA/DoDDS
Georgia 60 22 Georgia
Maryland 60 22 Maryland
Massachusetts 56 29 Massachusetts
Minnesota 58 24 Minnesota
Montana 61 24 Montana
North Carolina 57 28 North Carolina
Oklahoma 63 24 Oklahoma
Oregon 57 25 Oregon
Rhode Island 58 24 Rhode Island
Tennessee 60 23 Tennessee
Texas 57 30 Texas
Virginia 61 27 Virginia
Washington 58 23 Washington
Wisconsin 60 27 Wisconsin
Wyoming 58 22 Wyoming
Lower than Colorado
Alabama 66 17 Alabama
Arizona 59 20 Arizona
Arkansas 63 13 Arkansas
California 56 19 California
District of Columbia 52 11 District of Columbia
Florida 59 19 Florida
Hawaii 58 14 Hawaii
Kentucky 63 20 Kentucky
Louisiana 64 11 Louisiana
Mississippi 63 11 Mississippi
Missouri 62 17 Missouri
Nevada 61 18 Nevada
New Mexico 61 17 New Mexico
New York 63 20 New York
South Carolina 64 15 South Carolina
Utah 58 21 Utah
Virgin Islands 53 8 Virgin Islands
West Virginia 64 16 West Virginia
100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60
Percent Basic and Below Basic
Percent Proficient and Advanced

NOTE: Numbers may not add to 100, or to the exact percentage at or above Achievement levels, due to rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

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SECTION 2

Writing Performance by Demographic Characteristics

Since its inception in 1969, NAEP's mission has been to collect, analyze, and produce valid and reliable information about the academic performance of students in the United States in various learning areas. In 1990, the mission of NAEP was expanded to provide state-by-state results on academic achievement. To provide each state with an individual report presenting its own results, the computer-generated reporting system was developed; this report was produced using that system.

From 1990 through 1996, NAEP provided state reports with several variables chosen from the student, school, and teacher background questionnaires for their general interest to most states. Because of new Internet capabilities, and with the approval of the state NAEP representatives, the 1998 state reports are tailored to provide information of most immediate need to all states. Consequently, results are reported here by total population and broken out by major demographic variables only. State NAEP results on the Internet provide resources for customized reports not possible in the past.

Reported in this section are the results for student performance broken down by the main demographic variables usually reported by NAEP:

- Gender
- Race/ethnicity
- Levels of parental education
- Eligibility for the National School Lunch Program (NSLP)
- Type of location

Each of these variables is reported first by average scale score and selected percentiles and then by percentages of students at or above each achievement level. Results are presented only for those groups meeting preestablished minimum sample size requirements.

Interpretations and conclusions based on an examination of the differences between subgroups of students should be made cautiously, as should inferences about the effectiveness of the NSLP, because there are generally many other factors involved that are not discussed here and possibly not addressed by NAEP.

The average scale scores attained by a selected population do not reflect entirely the range of abilities within that population. In addition, differences between subgroups cannot be attributed simply to students' subgroup identification. A complex array of factors combine to affect students' achievement and their performance on measures of writing ability. Important issues such as opportunities to learn and sociocultural environmental factors must be considered in interpreting these differences.[1]

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[1] Stevens, F. (1993). *Opportunity to learn: Issues of equity for poor and minority students*. Washington, DC: National Center for Education Statistics.

Gender

One issue covered in many studies and by comparisons below is that of differences in performance between males and females. Several studies show that females outperform males in development of literacy at the elementary and middle school grades; reports documenting or surveying gender differences in writing include *NAEP 1996 Trends in Academic Progress*,[8] *The Condition of Education*,[9] and *The ETS Gender Study*.[10] In the 1998 NAEP state writing assessment, eighth-grade females' average scale score was higher than that of males in every participating jurisdiction.

Scale Score Results by Gender

In terms of average writing scale scores for Colorado's public school students, Table 2.1A shows the following.

- In Colorado, male students' average scale score (141) was lower than that of females (161).
- The average writing scale score of males in Colorado (141) was not significantly different from that of males across the nation (138). Similarly, Colorado females' average scale score (161) was not significantly different from that of females nationwide (158).

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.1A

Average writing scale scores and selected percentiles for public school students by gender

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Males							
Colorado	51 (1.0)	141 (1.4)	99 (3.4)	120 (1.4)	142 (1.8)	163 (1.2)	181 (1.4)
West	50 (0.7)	135 (1.6)	89 (2.4)	111 (1.5)	135 (2.0)	159 (1.5)	180 (1.3)
Nation	51 (0.4)	138 (0.8)	93 (0.9)	115 (1.1)	139 (0.8)	162 (1.0)	181 (1.4)
Females							
Colorado	49 (1.0)	161 (1.8)	118 (1.7)	141 (1.8)	163 (1.3)	184 (1.7)	202 (4.0)
West	50 (0.7)	154 (1.2)	109 (1.9)	131 (2.0)	156 (1.4)	179 (1.5)	198 (1.8)
Nation	49 (0.4)	158 (0.6)	114 (0.9)	136 (0.9)	159 (0.9)	181 (0.9)	199 (0.7)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

[8] Campbell, J., Voelkl, K., & Donahue, P. (1997). *NAEP 1996 trends in academic progress* (NCES Publication No. 97–985). Washington, DC: National Center for Education Statistics.

[9] For instance, see Indicator 20: U.S. Department of Education. (1996). *The condition of education 1996* (NCES Publication No. 96–304). Washington, DC: Office of Educational Research and Improvement.

[10] Cole, N. (1997). *The ETS gender study: How females and males perform in educational settings*. Princeton, NJ: Educational Testing Service.

Achievement Level Results by Gender

As shown in Table 2.1B, the following is true of achievement levels attained by Colorado's public school students.

- In Colorado, 16 percent of males and 38 percent of females performed at or above the *Proficient* level. These percentages were significantly different.
- In Colorado, 80 percent of males performed at or above the *Basic* level. This was lower than the percentage of females performing at or above the *Basic* level (92 percent).
- The percentage of males at or above the *Proficient* level in Colorado (16 percent) was not significantly different from that of males in the nation (15 percent).
- The percentage of females in Colorado performing at or above the *Proficient* level (38 percent) was not significantly different from that of females nationwide (34 percent).

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.1B

Percentages of public school students attaining achievement levels by gender

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Males				
Colorado	20 (1.7)	80 (1.7)	16 (1.0)	0 (0.1)
West	28 (1.8)	72 (1.8)	14 (1.2)	0 (0.2)
Nation	24 (0.9)	76 (0.9)	15 (0.8)	0 (0.1)
Females				
Colorado	8 (0.9)	92 (0.9)	38 (2.5)	2 (0.6)
West	12 (0.8)	88 (0.8)	31 (1.5)	2 (0.3)
Nation	10 (0.4)	90 (0.4)	34 (0.9)	2 (0.2)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Race/Ethnicity

As part of the background questionnaire administered with the assessment, students were asked to identify the racial/ethnic subgroup that best described them. The five mutually exclusive categories were White, Black, Hispanic, Asian/Pacific Islander, and American Indian. The information provided by the students was the primary contributor to the classifications appearing in Tables 2.2A and 2.2B.[11] Only those racial/ethnic subgroups with sufficient membership to meet reporting requirements in Colorado are reported.

Scale Score Results by Race/Ethnicity

In terms of average writing scale scores for Colorado's public school students, Table 2.2A indicates the following.

- The average scale score of White students in Colorado was higher than those of Black and Hispanic students but was not significantly different from that of Asian/Pacific Islander students.
- The average scale scores of White, Black, Hispanic, and Asian/Pacific Islander students in Colorado were not significantly different from those of similar students nationwide.

[11] For details of the derivation of this variable, see the *Writing Report Card*.

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.2A

Average writing scale scores and selected percentiles for public school students by race/ethnicity

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
White							
Colorado	69 (1.4)	157 (1.4)	116 (1.9)	137 (1.5)	159 (1.3)	179 (2.4)	197 (1.9)
West	50 (1.7)	156 (1.3)	111 (1.2)	134 (1.8)	157 (1.9)	179 (1.5)	198 (1.2)
Nation	65 (0.4)	156 (0.7)	112 (1.3)	135 (0.9)	158 (1.1)	179 (0.9)	197 (1.0)
Black							
Colorado	4 (0.4)	132 (4.9)	91 (11.6)	112 (4.9)	133 (4.8)	154 (4.1)	172 (8.0)
West	9 (1.2)	130 (3.0)	88 (3.2)	107 (2.6)	130 (4.5)	151 (3.5)	173 (3.5)
Nation	15 (0.2)	130 (1.0)	91 (1.9)	110 (1.5)	131 (1.4)	150 (1.4)	168 (1.2)
Hispanic							
Colorado	21 (1.4)	132 (2.2)	87 (4.6)	109 (2.6)	134 (3.1)	157 (2.5)	175 (2.3)
West	33 (1.6)	130 (2.0)	86 (1.6)	107 (2.1)	130 (2.0)	153 (2.3)	173 (3.1)
Nation	14 (0.2)	129 (1.5)	84 (1.6)	106 (2.1)	130 (1.6)	153 (1.7)	173 (2.1)
Asian/Pacific Islander							
Colorado	4 (0.5)	161 (4.9)	121 (9.0)	140 (7.8)	163 (4.1)	184 (5.4)	203 (12.2)
West	7 (1.2)	156 (5.8)	111 (7.3)	134 (5.8)	157 (7.0)	180 (5.3)	199 (6.8)
Nation	3 (0.2)	157 (3.8)	112 (5.9)	135 (4.5)	158 (4.9)	181 (3.3)	200 (4.5)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Achievement Level Results by Race/Ethnicity

Table 2.2B shows the following to be true of achievement levels attained by Colorado's public school students.

- In Colorado, the percentage of White students performing at or above the *Proficient* level was greater than those of Black and Hispanic students but was not significantly different from that of Asian/Pacific Islander students.
- In Colorado, the percentage of White students performing at or above the *Basic* level was greater than those of Black and Hispanic students but was not significantly different from that of Asian/Pacific Islander students.
- The percentages of White, Black, Hispanic, and Asian/Pacific Islander students in Colorado performing at or above the *Proficient* level were not significantly different from those of similar students nationwide.

THE NATION'S REPORT CARD 1998 State Assessment

TABLE 2.2B

Percentages of public school students attaining achievement levels by race/ethnicity

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
White				
Colorado	9 (0.9)	91 (0.9)	32 (1.9)	1 (0.5)
West	11 (1.1)	89 (1.1)	32 (1.5)	1 (0.3)
Nation	11 (0.6)	89 (0.6)	31 (1.0)	1 (0.2)
Black				
Colorado	27 (5.9)	73 (5.9)	9 (4.6)	0 (****)
West	32 (3.1)	68 (3.1)	9 (2.4)	0 (****)
Nation	29 (1.5)	71 (1.5)	7 (0.7)	0 (****)
Hispanic				
Colorado	30 (3.0)	70 (3.0)	11 (1.4)	0 (****)
West	32 (1.8)	68 (1.8)	10 (1.3)	0 (0.1)
Nation	32 (1.4)	68 (1.4)	10 (1.0)	0 (0.1)
Asian/Pacific Islander				
Colorado	7 (3.3)	93 (3.3)	37 (6.3)	2 (****)
West	12 (3.5)	88 (3.5)	31 (5.5)	2 (****)
Nation	11 (2.6)	89 (2.6)	33 (3.7)	2 (1.2)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses.
**** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Students' Reports of Parents' Highest Education Level

As part of the background questionnaire administered with the assessment, students were asked to identify the highest level of education completed by each parent. The groupings were determined by the highest educational level reported for either parent.

Level of parental education has always exhibited the same general pattern in NAEP reports: the higher the level of parental education, the higher the level of student performance. This finding is borne out by other studies; for instance, see a paper by Grissmer, Kirby, Berends, and Williamson (1994) that includes findings from the National Longitudinal Survey of Youth (NLSY) and the National Education Longitudinal Study (NELS).[12]

Note that the format for the question is different for the 1998 writing assessment than in previous NAEP assessments. The format change is described in the *Writing Report Card*.

Scale Score Results by Parents' Education

In terms of average writing scale scores for Colorado's eighth-grade public school students in 1998, Table 2.3A indicates the following. (The following discussion pertains only to those students who reported knowing the highest level of education achieved by one or both parents.)

- The average scale score of students in Colorado reporting that neither parent graduated from high school was lower than those of students reporting that at least one parent graduated from high school, at least one parent had some education after high school, or at least one parent graduated from college.
- The average scale score for students in Colorado reporting that neither parent graduated from high school was lower than that of similar students nationwide. The average scale scores for students in Colorado reporting that at least one parent graduated from high school, at least one parent had some education after high school, or at least one parent graduated from college were not significantly different from those of similar students nationwide.

[12] Grissmer, D.W., Kirby, S.N., Berends, M., and Williamson, S. (1994). *Student achievement and the changing American family* (Publication No. MR-488-LE). Santa Monica, CA: RAND.

THE NATION'S REPORT CARD 1998 State Assessment

TABLE 2.3A

Average writing scale scores and selected percentiles for public school students by parents' highest level of education

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Did not finish high school							
Colorado	4 (0.5)	119 (2.9)	78 (5.6)	99 (4.1)	119 (6.6)	140 (2.8)	161 (3.8)
West	8 (0.4)	126 (1.9)	84 (3.4)	106 (2.5)	127 (2.6)	147 (4.9)	166 (3.5)
Nation	5 (0.3)	128 (1.9)	87 (2.5)	108 (2.4)	129 (1.4)	150 (2.0)	167 (2.8)
Graduated from high school							
Colorado	14 (0.8)	145 (2.3)	106 (1.5)	125 (2.9)	145 (2.1)	165 (3.6)	185 (4.8)
West	13 (0.5)	141 (1.3)	100 (2.0)	119 (2.8)	141 (3.0)	163 (1.5)	184 (2.6)
Nation	16 (0.4)	144 (0.8)	103 (1.5)	123 (1.8)	145 (0.8)	166 (1.2)	183 (2.0)
Some education after high school							
Colorado	25 (1.1)	147 (2.0)	104 (2.6)	125 (2.5)	148 (1.9)	169 (2.7)	189 (4.5)
West	29 (0.8)	141 (1.6)	96 (2.4)	118 (2.4)	142 (2.1)	165 (1.9)	185 (2.5)
Nation	28 (0.6)	143 (0.8)	100 (1.6)	121 (1.0)	144 (1.2)	166 (1.1)	185 (1.1)
Graduated from college							
Colorado	55 (1.6)	159 (1.3)	116 (3.1)	138 (1.7)	161 (1.8)	181 (1.2)	199 (1.9)
West	46 (1.1)	154 (1.5)	106 (3.1)	131 (3.0)	156 (1.8)	180 (1.4)	199 (2.5)
Nation	48 (0.9)	156 (0.8)	110 (1.0)	133 (1.0)	158 (1.1)	181 (1.1)	200 (1.1)
I don't know.							
Colorado	3 (0.3)	116 (4.6)	69 (7.3)	92 (10.5)	118 (11.3)	143 (20.6)	164 (10.8)
West	4 (0.3)	115 (2.8)	73 (6.5)	94 (2.7)	116 (3.7)	136 (4.7)	157 (4.7)
Nation	3 (0.1)	117 (1.7)	76 (4.1)	96 (4.4)	118 (1.7)	138 (2.7)	156 (2.3)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Achievement Level Results by Parents' Education

In terms of achievement levels attained by Colorado's eighth-grade public school students in 1998, Table 2.3B indicates the following. (As with the discussion of scale score results, the following pertains only to those students who reported knowing the highest level of education achieved by one or both parents.)

- The percentage of students in Colorado reporting that neither parent graduated from high school performing at or above the *Proficient* level was smaller than the corresponding percentages for students reporting that at least one parent graduated from high school, at least one parent had some education after high school, or that at least one parent graduated from college.
- The percentage of students in Colorado reporting that neither parent graduated from high school performing at or above the *Basic* level was smaller than the corresponding percentages for students reporting that at least one parent graduated from high school, at least one parent had some education after high school, or that at least one parent graduated from college.
- The percentages of students performing at or above the *Proficient* level did not differ significantly in Colorado from those of students nationwide for all four levels of reported parental education.

THE NATION'S REPORT CARD 1998 State Assessment

TABLE 2.3B

Percentages of public school students attaining achievement levels by parents' highest level of education

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Did not finish high school				
Colorado	45 (4.9)	55 (4.9)	5 (3.0)	0 (****)
West	33 (2.0)	67 (2.0)	6 (1.5)	0 (****)
Nation	31 (2.4)	69 (2.4)	6 (1.8)	0 (****)
Graduated from high school				
Colorado	15 (2.0)	85 (2.0)	18 (3.5)	1 (****)
West	21 (2.5)	79 (2.5)	15 (1.2)	1 (0.3)
Nation	17 (1.3)	83 (1.3)	18 (1.2)	0 (0.2)
Some education after HS				
Colorado	16 (2.3)	84 (2.3)	22 (2.5)	1 (****)
West	22 (1.9)	78 (1.9)	18 (1.5)	0 (0.3)
Nation	19 (0.9)	81 (0.9)	19 (0.9)	0 (0.1)
Graduated from college				
Colorado	9 (0.9)	91 (0.9)	34 (1.6)	1 (0.3)
West	14 (1.2)	86 (1.2)	32 (1.8)	2 (0.3)
Nation	12 (0.6)	88 (0.6)	33 (1.2)	2 (0.2)
I don't know.				
Colorado	48 (4.5)	52 (4.5)	5 (****)	1 (****)
West	47 (4.9)	53 (4.9)	3 (1.8)	0 (****)
Nation	45 (3.0)	55 (3.0)	3 (1.1)	0 (****)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses.
**** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Free/Reduced-Price Lunch Program Eligibility

NAEP tracks eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA), is designed to ensure that children near or below the poverty line receive nourishing meals. This program is available to public schools, nonprofit private schools, and residential child care institutions. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of poverty. More information is available at the USDA Web site, in particular under "Welcome to the School Lunch Program (NSLP)" at http://www.fns.usda.gov/cnd/Lunch/Default.htm.

NAEP collects data on student eligibility for the NSLP in five categories: eligible for reduced-price lunches, eligible for free lunches, not eligible for the NSLP, information was not available, or schools did not provide the information. Because some of these groups were small, the categories were combined into eligible, not eligible, and information not available, as reported here for groups meeting minimum sample size requirements.

Scale Score Results by Eligibility for the Free/Reduced-Price Lunch Program

In terms of average writing scale scores for Colorado's public school students in 1998, Table 2.4A shows the following.

- In Colorado, the average writing scale score of students eligible for free/reduced-price lunch was 132. This was lower than that of students not eligible for this program (158).
- Students in Colorado eligible for free/reduced-price lunch had an average scale score (132) that did not differ significantly from that of similar eighth graders nationwide (131).
- Students in Colorado who were not eligible for free/reduced-price lunch had an average scale score (158) that did not differ significantly from that of similar eighth graders nationwide (156).

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.4A

Average writing scale scores and selected percentiles for public school students by free/reduced-price lunch eligibility

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Eligible							
Colorado	24 (1.5)	132 (2.4)	89 (3.7)	109 (2.8)	133 (3.6)	156 (3.0)	175 (4.2)
West	36 (1.9)	129 (1.4)	86 (1.9)	107 (2.2)	130 (1.8)	152 (1.5)	173 (2.1)
Nation	30 (1.0)	131 (0.8)	90 (1.3)	110 (0.8)	132 (1.0)	153 (1.1)	172 (0.8)
Not eligible							
Colorado	65 (2.7)	158 (1.5)	117 (2.9)	138 (1.4)	159 (1.8)	179 (1.4)	196 (3.6)
West	52 (3.7)	154 (1.5)	110 (2.0)	132 (3.1)	155 (1.7)	178 (1.6)	197 (2.1)
Nation	58 (1.7)	156 (0.8)	113 (1.5)	135 (1.0)	157 (1.0)	179 (0.8)	197 (1.0)
Information not available							
Colorado	11 (2.8)	151 (5.3)!	102 (4.1)!	128 (5.2)!	155 (6.6)!	178 (7.7)!	197 (4.9)!
West	12 (3.3)	148 (3.6)!	97 (5.5)!	122 (4.2)!	150 (3.6)!	173 (3.8)!	195 (2.4)!
Nation	12 (2.0)	150 (2.2)	102 (3.2)	126 (2.4)	152 (2.6)	175 (3.0)	196 (2.9)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses. ! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Achievement Level Results by Eligibility for the Free/Reduced-Price Lunch Program

In terms of achievement levels attained by public school students in 1998, Table 2.4B indicates the following.

- In Colorado, 11 percent of students who were eligible for the free/reduced-price lunch program and 32 percent of students who were not eligible for this program performed at or above the *Proficient* level. These percentages were significantly different.
- For students who were eligible for the free/reduced-price lunch program, the percentage at or above the *Proficient* level in Colorado (11 percent) was not significantly different from the corresponding percentage for eligible students nationwide (10 percent).
- For students who were not eligible for the free/reduced-price lunch program, the percentage at or above the *Proficient* level in Colorado (32 percent) was not significantly different from the corresponding percentage for ineligible students nationwide (32 percent).

THE NATION'S REPORT CARD 1998 State Assessment

TABLE 2.4B

Percentages of public school students attaining achievement levels by free/reduced-price lunch eligibility

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Eligible				
Colorado	29 (2.6)	71 (2.6)	11 (2.3)	0 (****)
West	32 (1.9)	68 (1.9)	10 (0.9)	0 (****)
Nation	29 (1.0)	71 (1.0)	10 (0.5)	0 (0.1)
Not eligible				
Colorado	9 (1.2)	91 (1.2)	32 (1.9)	1 (0.5)
West	12 (1.4)	88 (1.4)	30 (1.6)	1 (0.3)
Nation	11 (0.7)	89 (0.7)	32 (1.0)	1 (0.2)
Information not available				
Colorado	17 (3.6)!	83 (3.6)!	30 (5.6)!	1 (0.7)!
West	20 (3.0)!	80 (3.0)!	25 (3.7)!	2 (0.9)!
Nation	17 (1.5)	83 (1.5)	27 (2.5)	1 (0.5)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses.
! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.
**** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Type of Location

Attention has been given recently to America's urban schools, often with the perception that these schools and their students compare less favorably with their nonurban counterparts.[13] Information on students according to school location is important to the efforts to ensure equal access to a high quality education for all. NAEP public school location is based on the NCES Common Core of Data (CCD), as drawn from U.S. Census data and definitions.

Schools that participated in the assessment were classified into three mutually exclusive types of geographic location—Central City, Urban Fringe/Large Town, and Rural/Small Town. General information (including definitions) about these categories and schools' categorization within them can be found in Chapter 3 of the technical report for the 1996 NAEP state mathematics assessment.[14]

Scale Score Results by Type of Location

In terms of average writing scale scores for public school students in Colorado, Table 2.5A reveals the following. The nature of the NAEP national sample does not permit accurate estimation of type of location for the U.S. geographic regions. Therefore, no results for the West region are shown.

- In Colorado, the average writing scale score of students attending public schools in central cities was lower than that of students in urban fringes/large towns but was not significantly different from that of students in rural areas/small towns.
- The average scale scores of students attending schools in all three types of location in Colorado were not significantly different from those of similar students nationwide.

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.5A

Average writing scale scores and selected percentiles for public school students by type of location

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Central city							
Colorado	33 (1.6)	146 (2.3)	98 (3.6)	123 (3.0)	149 (3.1)	172 (1.8)	190 (2.7)
Nation	31 (1.6)	141 (1.3)	94 (1.2)	117 (1.4)	141 (1.4)	166 (1.4)	188 (1.7)
Urban fringe/ large town							
Colorado	42 (1.9)	154 (1.8)	112 (4.4)	132 (1.7)	155 (2.2)	177 (2.5)	196 (3.8)
Nation	39 (2.0)	153 (1.4)	107 (2.0)	130 (1.5)	155 (1.7)	178 (1.5)	196 (1.5)
Rural/small town							
Colorado	24 (1.5)	151 (3.2)	106 (3.3)	130 (3.4)	153 (3.7)	174 (3.8)	193 (3.7)
Nation	29 (1.5)	148 (1.2)	104 (1.3)	126 (1.6)	150 (1.1)	171 (1.7)	189 (1.6)

The NAEP writing scale ranges from 0 to 300. The standard errors of the statistics appear in parentheses. Characteristics of the school sample do not permit reliable regional results for type of location.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

[13] U.S. Department of Education, National Center for Education Statistics (1996). *Urban schools: The challenge of location and poverty* (NCES Publication No. 96–184). Washington, DC: U.S. Government Printing Office.

[14] Allen, N.L., Jenkins, F., Kulick, E., and Zelenak, C.A. (1997). *Technical report of the NAEP 1996 state assessment program in mathematics* (NCES Publication No. 97–951). Washington, DC: National Center for Education Statistics.

Achievement Level Results by Type of Location

In terms of achievement levels for public school students in Colorado, Table 2.5B indicates the following.

- For students who attended schools in central cities in Colorado, the percentage at or above the *Proficient* level was not significantly different from the corresponding percentages for students in urban fringes/large towns and rural areas/small towns.
- For students in central cities in Colorado, the percentage at or above the *Basic* level was smaller than the corresponding percentage for students in urban fringes/large towns but was not significantly different from that of students in rural areas/small towns.
- The percentages of students attending schools in all three types of location in Colorado performing at or above the *Proficient* level were not significantly different from those of their national counterparts.

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 2.5B

Percentages of public school students attaining achievement levels by type of location

	Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Central city				
Colorado	18 (2.0)	82 (2.0)	24 (2.1)	1 (0.4)
Nation	22 (1.3)	78 (1.3)	19 (1.4)	1 (0.2)
Urban fringe/large town				
Colorado	11 (1.4)	89 (1.4)	29 (2.4)	1 (0.5)
Nation	14 (1.1)	86 (1.1)	29 (1.7)	1 (0.2)
Rural/small town				
Colorado	14 (2.1)	86 (2.1)	27 (4.2)	1 (0.5)
Nation	16 (1.0)	84 (1.0)	23 (1.4)	1 (0.2)

The achievement levels correspond to the following points on the NAEP writing scale at grade 8: *Basic*, 114–172; *Proficient*, 173–223; and *Advanced*, 224 and above. The standard errors of the statistics appear in parentheses. Characteristics of the school sample do not permit reliable regional results for type of location.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

Appendix A Where to Find More Information

Below are only a few suggestions for finding additional NAEP results and related information. A hyperlinked version of this section is available from the Web page that introduces the 1998 state reports, http://nces.ed.gov/nationsreportcard/pubs/stt1998/1999463.shtml. Many of the reports and data files on the Web will require the use of the (free) Adobe Acrobat Reader; for information on installing the Reader, click on the *Help* button at the NAEP Web site, http://nces.ed.gov/nationsreportcard/.

Details of the NAEP Writing Assessment

For details of the assessment, refer to the companion report, the *NAEP 1998 Writing Report Card for the Nation and the States*. Both that report and the *NAEP 1998 Writing State Reports* are available on the NAEP Web site. For details of the framework on which the writing assessment was developed, see http://www.nagb.org/. Click on the *Publications* button on the left, and then click on *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress*.

Technical information about the assessment will be available in the *NAEP 1998 Technical Report* in 2000. Until that technical report is available, many questions may be answered by searching in the *Technical Report of the NAEP 1996 State Assessment Program in Science*, to be found at the NAEP Web site. The science assessment was also on a within-grade scale, so science scaling procedures would be more similar to writing than would the scaling procedures in the mathematics assessment (which was on a cross-grade scale).

1998 Participation Rates

Information on each jurisdiction's participation rates for schools and students is in Appendix A of the *Writing Report Card*, to be found at the NAEP Web site.

Additional Results from the Writing Assessment

For more findings from the 1998 writing assessments, refer to the 1998 results at the NAEP Web site. On the release date, the summary data tables (SDTs) at this site will include student, school, and teacher variables for all jurisdictions, the nation, and the four NAEP geographic regions. Complete SDTs will be available for all jurisdictions, with all background questions cross-tabulated with the major demographic reporting variables (for instance, hours of television watched by level of parental education or limited English proficiency by race/ethnicity).

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Variables Reported in the State Reports

The following variables can be found in the summary data tables (SDTs) at http://nces.ed.gov/nationsreportcard/tables. More information on these variables is available in Appendix A of the *Writing Report Card* at http://nces.ed.gov/nationsreportcard/, the NAEP Web site. The variables reported here, with their labels in the tables are:

- **Gender**. This is DSEX in the SDTs. Reports documenting or surveying gender differences in writing include *NAEP 1996 Trends in Academic Progress* at the NAEP Web site, *The Condition of Education*, for instance, *Indicator 20* at http://nces.ed.gov/pubs/ce/c9620a01.html, and *The ETS Gender Study* at ftp://etsis1.ets.org/pub/res/gender.pdf.
- **Race/Ethnicity**. This is DRACE in the SDTs. An instructive explanation of the derivation appears in Appendix A of the *Writing Report Card*, at the NAEP Web site.
- **Students' Reports of Parents' Highest Education Level**. PARED2 is a derived variable also described in Appendix A of the *Writing Report Card*. The effect of parental education is discussed in a paper by Grissmer, Kirby, Berends, and Williamson (1994) at http://www.rand.org/publications/MR/MR535/MR535.html.
- **Free/Reduced-Price Lunch Program Eligibility**. The variable reported here is SLUNCH1, which is a version of SLUNCH with several of the categories of SLUNCH (e.g., reduced and free) combined. A description of the free/reduced-price lunch program is available at http://www.fns.usda.gov/cnd/Lunch/Default.htm.
- **Type of Location**. TOL3 is the label in the SDTs. The TOL variable uses data from the most recent and Quality Education Data (QED) file (see http://www.qeddata.com/) combined with the most recent Private School Survey PSS file (see http://nces.ed.gov/surveys/pss.html). The Common Core of Data (CCD) file (see http://nces.ed.gov/ccd/index.html) is used to extract type of location or urbanization information where missing from the QED file. Through this process, the TOL variable reflects the type of location values for the school recorded on the 1995/96 CCD and PSS files. Schools with missing values for type of location were assigned the TOL of other schools within the same city, when TOL did not vary within that city. Any remaining missing TOL values were assigned using U.S. Bureau of Census publications. Additional information is available under *General Information* on the NAEP SDT Tool Web pages and also in Chapter 3, Section 4, of the *Technical Report of the NAEP 1996 State Assessment Program in Mathematics* (http://nces.ed.gov/nationsreportcard/96report/97951.pdf).
- **Type of School**. SCHTYPE is the label in the SDTs. Note that the *Nonpublic* school sample includes *Private* and *Catholic* school students. *BIA* (Bureau of Indian Affairs) and *DoDEA* (Department of Defense Education Activity) students are in the *Combined* sample only.

Publications from NAEP Writing Assessments

NAEP also offers various special reports on writing that may be of particular interest to teachers. These may be ordered from the source at the end of this section, and some of them can be accessed and printed from the Web.

- *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress*, from the National Assessment Governing Board (available at http://www.nagb.org/)
- *NAEP 1998 Writing Report Card for the Nation and the States*, the companion to this State Report (available at http://nces.ed.gov/nationsreportcard/, the NAEP Web site)
- *The NAEP 1998 Writing Report Card National Highlights*, a brochure with student samples, covering the national and state NAEP 1998 writing assessment (available at the NAEP Web site)
- *NAEP 1999 Trends in Academic Progress*, containing samples of student writing from the NAEP Long-Term Trend assessment (forthcoming at the NAEP Web site)
- *NAEP Trends in Writing: Fluency and Writing Conventions*, a short report from the NAEP Long-Term Trend assessment (available at the NAEP Web site)
- *NAEPFacts: Can Students Benefit from Process Writing?* To read this short publication describing selected results from the *1992 Writing Report Card*, go to http://nces.ed.gov/pubsearch/ and enter 96845 in the box labeled "Enter NCES #."

Some special reports on reading may be of interest to language arts teachers:

- *Listening to Children Read Aloud, Data from NAEP's Integrated Reading Performance Record (IRPR) at Grade 4*, results from the 1992 IRPR, a special study conducted with a subgroup of fourth graders who participated in the 1992 NAEP reading assessment (available in print only)
- *Interviewing Children About their Literacy Experiences, Data from NAEP's Integrated Reading Performance Record (IRPR) at Grade 4*, results from the 1992 IRPR, a special study conducted with a subgroup of fourth graders who participated in the 1992 NAEP reading assessment (available in print only)
- *NAEPFacts: Listening to Children Read Aloud: Oral Fluency* To read this NAEPFacts, summarizing NAEP's first attempt to measure 4th graders' oral reading fluency, accuracy, and rate on a large-scale basis, go to http://nces.ed.gov/pubsearch/ and enter 95762 in the box labeled "Enter NCES #."
- *Students Selecting Stories: The Effects of Choice in Reading Assessment*, results from the NAEP Reader Special Survey of the 1994 National Assessment of Educational Progress (available at the NAEP Web site). To see this publication, go to http://nces.ed.gov/pubsearch/ and enter 97491 in the box labeled "Enter NCES #."

For ordering information on these reports, write:

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 20794–1398
or call toll free 1–877–4 ED PUBS (1–877–433–7827)

NAEP reading reports in addition to those listed above are available at the NAEP Web site. For many of the publications, a free copy may be ordered on line. Go to http://nces.ed.gov/pubsearch/, enter the NCES publication number, or enter key words from the title and select National Assessment of Educational Progress in the "Search Options" box. If printed copies are available, the next page will have a link to "Order your free copy now from EdPubs."

Sample NAEP Questions for Classroom Use

All of the 1998 released items are available now in the *Writing Report Card*. The released items from the 1998 writing assessment will appear on the Web in the fall of 1999. They will join the released items from the NAEP 1998 reading assessment. The Sample Questions Tool presents questions, scoring guides, actual responses, and scores from released portions of NAEP assessments. To access this tool from the NAEP Web site, click on "Sample Questions." There is a tutorial for first time users.

Appendix B Figures from Section 1

Figures 1.2 and 1.3 are displayed here in full-page format, with legends and titles but without figure numbers or page headers and footers. In each state report on the Web, these figures will appear in color. They may be printed in black-and-white or in color for other uses such as overheads.

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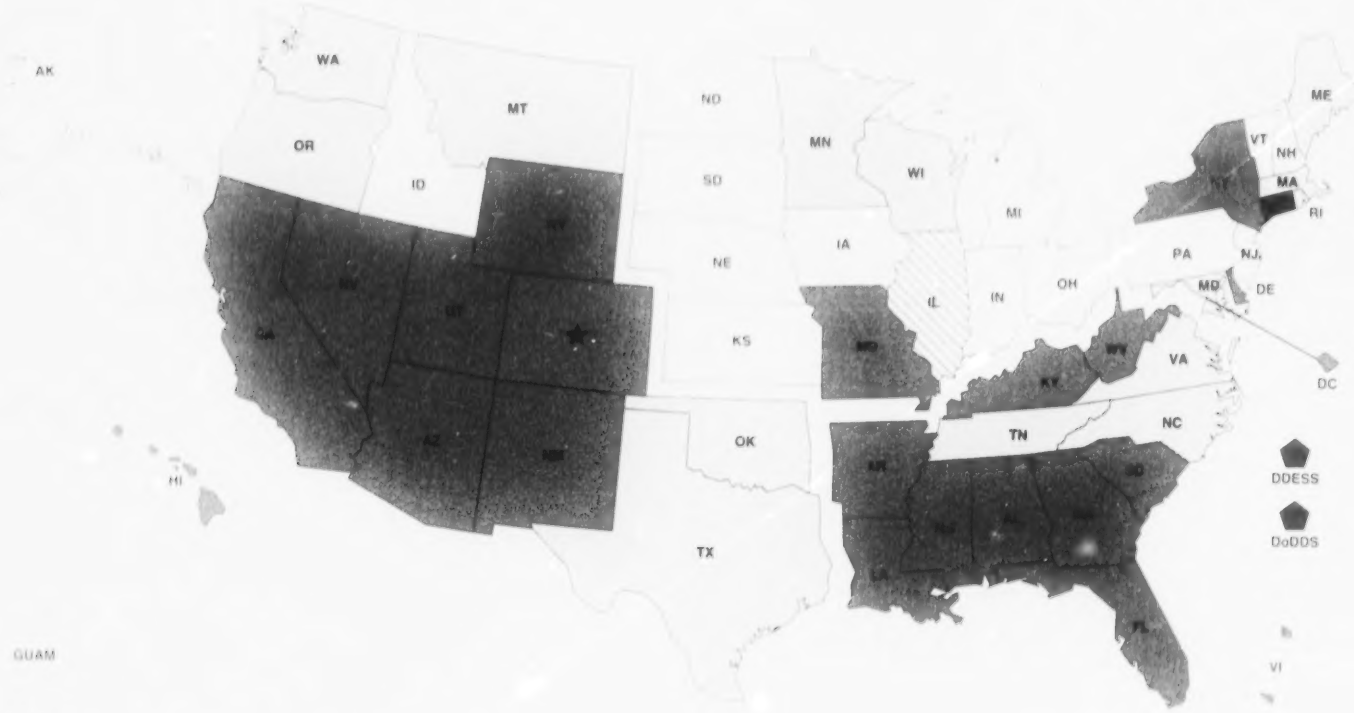
THE NATION'S REPORT CARD
1998 State Assessment

Colorado's 1998 average writing scale score compared to those for other participating jurisdictions for public school students at grade 8



- Target state
- State has higher average scale score than target state
- State is not significantly different from target state in average scale score
- State has lower average scale score than target state
- State did not meet minimum participation rate guidelines
- State did not participate in the NAEP 1998 Writing State Assessment

Caution should be exercised when interpreting comparisons among states and other jurisdictions. NAEP proficiency estimates are not adjusted to account for the socioeconomic, demographic, or geographic differences among states and jurisdictions.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

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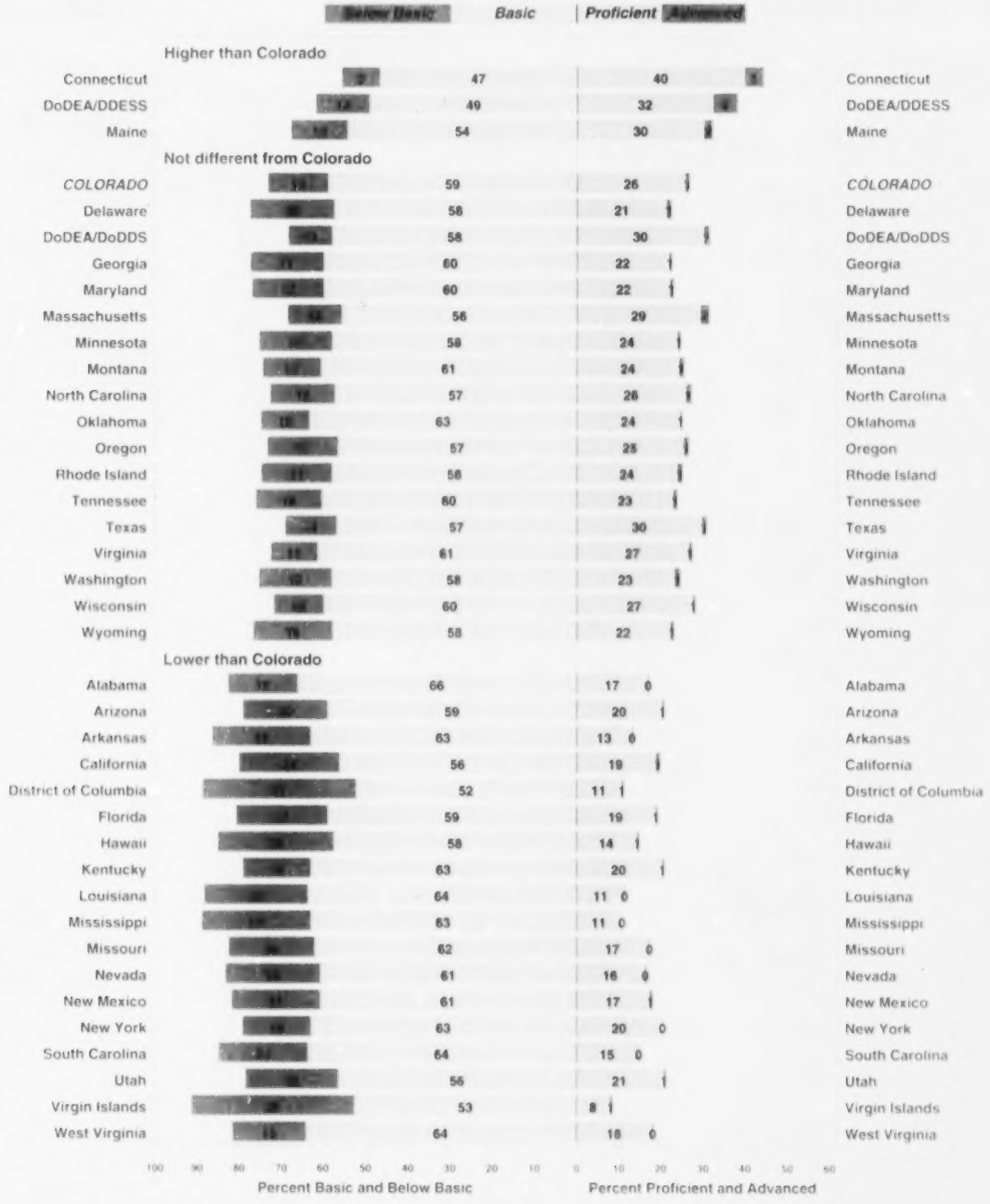
THE NATION'S REPORT CARD
1998 State Assessment

Achievement levels for writing: Comparing the percentage of public school students at or above the Proficient level in Colorado with those in other participating jurisdictions at grade 8 in 1998

The bars below contain estimated percentages of students in each NAEP writing achievement category. Each population of students is aligned at the point where the Proficient category begins, so that they may be compared at Proficient and above.



NOTE: Numbers may not add to 100, or to the exact percentage at or above Achievement levels, due to rounding.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Writing Assessment.

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Colorado

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